Instructional Material Series

Teaching Units in Geography for Middle Stage

Volume VII

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PROJECT TEAM

PROF. T.S. MEHTA	DR. (MRS.) P.P. SINGH
PROF. B.S. PARAKH	SHRI D.P. GUPTA

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FOREWORD

I HAVE pleasure in releasing yet another volume in our *Instructional Material Series.* This is the seventh volume of Teaching Units in geography for the middle school stage. The material has been prepared by teachers and teacher-educators under the guidance of the N.I.E. staff. It is hoped that the material will be found useful by the teaching community in our schools, not so much for its adoption in toto but for developing their own resource materials to meet their specific needs for a more effective and dynamic teaching and learning process in the actual classroom.

RAIS AHMED
Director
National Council of
Educational Refearch and Training

New Delhi
January 1975

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INTRODUCTION

The Need for Instructional Materials

One of the major steps that the National Council of Educational Research and Training has taken for the improvement of the quality of school education is the preparation of new instructional materials for the use of teachers. Instructional materials of various types such as textbooks, handbooks, curriculum guides, resource units, teaching units, etc., play a vital role in the teaching process, as they enhance the quality of teachers' performance, and pupil achievement.

The need for good instructional materials is paramount today because knowledge is expanding rapidly and major changes are taking place in the various subject fields, creating a wide gulf between what ought to be taught in the schools and what is actually being taught. The knowledge imparted in the schools is not only inadequate but also out-of-date. Both in natural sciences and social sciences new concepts are being developed and new discoveries are leading to a rethinking of the very structure of various disciplines. These changes must be reflected in the content of the school subjects. The educational lag is confined not only to the content of the subjects but also to the methods of instruction and evaluation. All this points out towards an urgent need to provide help to teachers in gaining access to content reflecting the latest developments in the field and to new methods and materials of teaching and evaluation through new instructional aids.

An equally potent reason why our teachers should be provided with good instructional materials is that very few schools have good libraries equipped with advanced books and journals through which teachers may keep their knowledge up-to-date. In all developing countries like ours there is a strain on finances with the result that insufficient resources are available for investment in school libraries. Therefore the goal of a good library for every school shall remain distant for a long time to come.

The most commonly used instructional aid in this country is the textbook. So far as the learner is concerned the use of the textbook is a major instructional aid, when supplemented by other materials, is not only legitimate but highly desirable. On the other hand teachers' use of the textbook as a sole basis for teaching is open to question. Much of the criticism against the textbook is based on the fact that this instructional material had been used not only to help the learners but also to determine the outline and content of the course. It is obvious that textbooks, however extensive and good they may be, cannot alone meet the needs of a particular course of study or syllabus. Hence teachers must supplement the textbooks with other instructional aids, such as curriculum guides, teachers handbooks and teaching units which contain useful suggestions about content and methodology of teaching and evaluation. Because of the above-mentioned reasons the erstwhile Department of Curriculum and Evaluation had in collaboration with the Department of Science Education and the Department of Field Services of the NCERT taken up a programme for the preparation of instructional materials in the form of 'teaching units' in various school subjects.

The Teaching Unit

The teaching unit as presented in this publication is in the form of help material for the teacher to develop his day-to-day lesson plans regarding a topic of study. It is neither a 'resource unit', nor a 'unit plan'. The former is too comprehensive and detailed to be used by a teacher of a particular class without proper adaptation, because it provides a great deal of reference material. The latter is too sketchy to be of any use beyond serving as an outline scheme of work. The teaching unit combines the merits of both. It is comprehensive to the extent that it covers all aspects of teaching. It clarifies goals to be achieved while teaching and offiers rich content together with suggestions for activities to be pursued. It also gives suggestions for evaluation and additional reference books. It contains more material than it is intended to teach the pupils. The additional matter provided is aimed at enriching the teacher and bringing him up-to-date. Thus the teaching units leave ample scope for the teacher to display initiative and originality in selecting and reorganising the material while developing his lesson plans. In terms of duration a teaching unit generally contains matter to be covered in about 3 to 10 teaching periods.

A. THE FORMAT OF THE UNIT

The teaching units that follow have the following parts. Due care has been taken to ensure that there is balance between the different parts.

1. Introduction or overview
2. Specific objectives of teaching
3. Content
4. Teaching hints
5. Reading references

This format has been adopted with due consideration of the usability of the teaching units, but there is no rigidity about it. It can be suitably changed at places according to the needs of the subject and topic. The teacher is also free to make use of either the whole unit or a part thereof.

1. *Introduction or the Overview*

The introduction or the overview aims to do the following :

(a) Give the teacher an idea of the scope of the unit, i.e., the depth and breadth of the topic to be achieved in the particular class.

(b) Focus his attention on some of the major concepts or ideas to be developed through the teaching of the unit.

(c) Bring out the new emphasis in teaching and organization of the material.

Thus, this overview places an overall picture of the teaching unit before the teacher so that he knows what he has to achieve.

2. *Specific Objectives of Teaching*

In each teaching unit emphasis is to be laid on the clearcut objectives of teaching. These specific objectives are listed under the following heads. 1. Knowledge, 2. understanding, 3. application, 4. skills, and 5 attitudes. These objectives should clearly bring out to the teacher the goals to be achieved and the outcomes expected through the teaching of that particular unit. As far as possible, they are written in unambiguous language bringing out clearly the modification and the content parts, because it is important that while framing the objectives the behavioural change and the curriculum content to be used in bringing about that behavioural change are both explicitly mentioned.

3. *Content*

This forms the main body of the unit and includes the related subject-matter which is to be used by the teacher for achieving the stated objectives. The criteria used for the selection of this content is the following :

(1) The matter suplements the content given in the textbook.

(2) It brings the information up-to-date.

(3) It provides additional enrichment material for teachers.

(4) It suggests desirable pattern for organising the content for that particular unit.

This material is woven around the major ideas and understandings to be developed, enlisted under specific objectives.

4. *Teaching Hints*

This part of the teaching unit suggests purposeful activities to be undertaken by the pupils and the teacher inside the classroom or outside it. These activities are all geared to the achievement of the specific objectives, mentioned earlier. Other suggestions in regard to the methods and techniques to be followed by the teacher for the teaching of these units are also included in this part. The list given is not exhaustive but is only suggestive. Wherever necessary, the uses of audio-visual aids and other teaching devices are also mentioned. In addition to this, suggestions for individualizing instruction are given, e g., activities for the gifted students.

5. *Evaluation*

In this part some suggested evaluation procedures as well as some sample test exercises are given. They are spread over various instructional objectives, laid down earlier in respect of a particular teaching unit, especially development of understanding and application of knowledge. Since each objective can be further broken into a number of more specific aspects depending upon the level at which it is being perused, these test exercises try to cover many such important specifications. Each form of item—essay, short-answer, very short answer and objective type—has its own merits and hence this material represents different commonly employed question forms. For instance, even the much avoided two-alternative or true-false test item may be quite profitably used for on-the-spot review test in the classroom.

Thus the evaluation procedures and the test material so provided are intended to help the teacher evaluate the achievement of students in the light of instructional objectives Accordingly, these test exercises can be put to a wide variety of uses, such as pre-testing, review work, informal class testing, home assignments, diagnostic testing, periodical formal testing and the like, thereby emphasizing the fact that evaluation should be as frequent as possible. It may not also be out of place to mention that these test questions can even be utilized as problematic situations to enliven class teaching. By way of illustration, in some cases the test items have been assembled in the form of unit tests accompanied with their blueprints, scoring keys and marking schemes.

Needless to say, the test material thus given is merely suggestive and should be taken as illustrative only to be adapted, developed and multiplied by the classroom teacher for actual use.

6. *Reading References*

In this concluding part of the teaching unit are given reference books for the teachers and for the pupils. This is found necessary because everything cannot be given in a teaching unit and it is expected that the enthusiastic teachers would like to know more about topics in which they feel interested.

B. Using the Teaching Unit

The primary aim of preparing the teaching units is to help the teacher and not to deprive him of his initiative and originality. Therefore, the material included is of suggestive nature. Necessary additions and modifications are to be done by the teacher himself. It will not be out of place to mention here that some of the information given in the content part of the units may not be passed on to the pupils. It is given for the teacher for his own enrichment and if necessary, use it to help the bright youngsters. In the same way activities suggested in the units may or may not be found suitable to the situation of each and every teacher. He or she is therefore completely at liberty to use them in any form. The same is true of the evalution part. Any modification according to the needs of the situation is not only permissible but desirable. Keeping all the above things into consideration with regard to the nature of the material provided in the units it is expected that the teachers will use them in the preparation of their day-to-day lesson plans.

Teaching Units

I

Physical Setting of South America

1. OVERVIEW

SOUTH AMERICA is a land of vast plains, towering mountains, tiny villages and modern cities. It is a land where millions live in poverty and a few, specially the owners of estates, live in luxury. The highly civilized life of the modern cities contrasts with the simple ways of the country folk.

South America along with Mexico and the countries of Central America and the West Indies, is commonly called Latin America, mainly because of the fact that many of the people of these countries speak either Spanish or Portuguese which are Latin languages. However, a large number of these people still speak various native Indian languages and know very little of the Latin culture. Hence, it is not accurate to call these countries Latin American.

The continent has an area of 18.5 million square kms and taken up nearly one seventh of the land area of the world. Its area is roughly same as that of the United States and Canada put together. It has a marked resemblance to North America in structure and relief. Lofty and fold mountain chains in the west, denuded, eastern highlands and central lowlands.

The Amazon, the world's second longest river drains mainly a third of the continent. The Amazon is named for the warlike women of Greek legend. Its name is believed to have been given by an early Spanish explorer. His party was attacked by a band of Indians which included many women warriors. The basin of Amazon has generally heavier rainfall than any other region of its size in the world. More than 150 cm of rain falls each year. Amazon is usually flooded from November until May. The low banks of the river allow the water to spread for miles over the jungle lowlands.

The name Andes is believed to come from 'anti', the Peruvian word for copper. There is much of copper in the Andean mountains. Gold, silver, tin, lead, iron, platinum and mercury are also found. Iron ore, copper and diamonds are obtained from the Brazilian Highlands. Important oil fields occur on the flanks of the western mountain system in Venezuela, Columbia, Peru and Argentina. The Pacific coastal strip has a curious mineral industry namely the nitrate industry of Northern Chile and this is possible because of the dry desert climate.

When the continent was discovered by the Europeans in the 15th and 16th centuries, the inhabitants at that time were the American Indians. The descedants of the explorers who settled in the continent are mainly of Spanish and Portuguese origin. They have mingled with the Indians as well as the Negroes, who were introduced for labour in the plantations. In recent years, large number of European immigrants, especially Italians, have settled in the more temperate lands of the south.

2. SPECIFIC OBJECTIVES OF TEACHING

A. Acquisition of Knowledge

The pupil will recall and recognize—

1. the different landscape of South America, narrow western coastal strip, western Cordillera, eastern and northern highlands, central lowlands and the deserts.

2. Some of the main peaks of the Andes, high plateaus and the volcanoes.
3 the Amazon river and the other major rivers that have their source in the Andes.
4. the inland lakes.
5. the Atacama and Patagonia desert regions.
6. the major vegetation belts.

B. Development of Understanding

The pupil develops understanding of the following major ideas :

1. The continent of South America resembles North America in its relief in having a narrow western coastal strip, western Cordilleras of fold mountains, eastern highlands and central plains.
2. The Amazon river, the largest river of the continent with its tributaries, serves as a transport artery.
3. South America has a wide range of climatic regions from snow-capped mountains to tropical forests and Mediterranean type of regions.
4. The Andes are rich in mineral wealth, such as silver, copper and tin Moreover, important oil fields occur in the north western region.
5. The Atacama desert curiously supports the nitrate industry.
6 The Pampas, the grassland of Argentina, is mainly responsible for the thriving cattle ranching industry.

C. Application of Knowledge

The Pupil—

1. cites examples and illustrations to indicate how natural phenomena and other features influence everday life of the people.

2. compares the mountain systems of South America with those of India, specially the ones on the west and east coast of the continent.
3. sees relationship between distribution of population and physical setting.
4. compares the climatic regions of South America and India.
5. cites example of fold mountains in the other parts of the world.

D. *Development of Skills*

The Pupil is able to—

1. locate the position of South America, on a world map.
2. mark on an outline map of South America, the major mountain systems, important rivers and inland lakes.
3. fill in an outline map, the Ocean currents and the winds that influence the climate of the South America.
4. mark on an outline of the world, the Equator and the Tropic of Capricorn and study their position in South America.

E. *Development of Attitudes*

The pupil appreciates—

1. the location of South America and its special physical features, such as the Amazon river and its low land, tropical forests, and the high Andes, which have made the exploration of the country very difficult.
2. the hardship of the people who live in high altitudes in the Andes or in the tropical forest of Amazon.
3. the variety of climatic regions in the continent and man's ingenuity in adopting himself to live comfortably in these regions.

3. CONTENT

Location, Size and Shape

South America extends from latitude 12° North to 55° South. It is widest in the North and narrows to the South, ending in the narrow neck of land, Cape Horn. The continent reaches farther toward the South Pole than any other continent except Antarctica. The Equator passes through the mouth of the Amazon and the Tropic of Capricorn roughly bisects the distance between the north coast and Cape Horn. Since the continent is wedge-shaped, more than two-thirds of its area lie within the tropics.

Physical features

The continent can be divided into a number of well-defined physical units and these are :

1. The Western Mountain System
2. The narrow coastal strip bordering the Pacific Ocean
3. The Central Plains
4. The Eastern Highlands

(1) *The Western Mountain System*

The Western Mountain system is known as the Andean Cordillera, or the Andes, which consists of fold ranges that extend for 7000 km along the Pacific coast. In the north there are several ranges separated by river valleys. In the middle, the system is broader and includes the broad, lofty plateau of Bolivia, but the whole system narrows to one main range in the south.

There are a number of large volcanic craters, the highest volcano being Chimborazo (20,702 feet) in Educator is Cotopai (19600 ft.) The highest peak of the system is Aconcagua (22834 ft.) which is an extinct volcano in Argentina, closer to the Argentina and Chile border. In South Chile submergence has taken place and the mountain chain is represented by islands.

(2) *The Costal Strip*

Between the Pacific Ocean and the Andes, narrow plains run along the coast for about 6000 kms. In some places these plains are broken by mountains that come down to the sea. However, these plains are never more than 160 kms wide. These coastal plains, in the north and south, are mostly forested and few persons live in these places. But in the middle section of the coast, there are desert lands which have been made productive by the use of mountain streams for irrigation Mines have also been developed in some of these regions, where there is a large population.

(3) *The Central Plains*

The Central plains of South America consists of the following .

(a) The Orinoco basin in the north has tropical grasslands, known as Llanos, that support some cattle and ranchers.

(b) The great Amazon basin with selvas or equatorial forests takes up the Central part of the continent

(c) The basin of the Parana—Paraguay Rivers.

(d) The Argentina Pampas, where enormous quantities of food crops and livestock are produced. The Patogonia desert is also included in this region but it is a plateau and not a lowland.

(4) *The Eastern Highlands*

The Eastern Highlands are separated by the Amazon river into the Highlands of Guiana and Venezula in the the north, and the high lands of Eastern Brazil in the south. Both the highlands are composed of old crystalline rocks that have been worn down by prolonged erosion. They are similar to the Labrador highlands and the Appalachian of North America.

Rivers

The great river system of the continent runs into the Atlantic Ocean due to the position of the Andes. The Amazon, with its fifteen tributaries, each of which is more than a thousand miles long, is the largest river system in the world. Its drainage system covers an area five sixth as large as the United States of America. The Amazon river system forms a network of highways, ocean liners going up to Manaos, 1200 kms from the mouth, and river streamers penetrating to the foot-hills of the Andes.

The Orinoco river lies north of the Amazon and in the south lies the Rio de Plata. It is fed by the Parana, Paraguay and Uruguay rivers and with them drains the southern lowland plains. The Magdelena flows into the Caribbean, the Guayas into the Pacific. The streams are short and swift but along the coast lands of Peru their waters are used for irrigation and to some extent, for hydro-electric power.

Lakes

Lake Ticticaca, high on the Andean plateau, above sea level, is the largest body of water in South America.

Lagos dos patos and Laos Mirim are the most famous lakes in Brazil. Langos dos patos is 200 kms long and 60 kms wide. Southern Argentina and Chile have a lake region which is one of the most beautiful in the world and is often called "the Switzerland of America."

Coast line

The coast line of the continent is fairly regular, except for the southern part of the western coast. Due to the submergence of the mountain range, the coast line is bordered by islands and, many deep fiorded inlets resembling the fiorded coast of British Columbia. However, small indentations all along the coast have formed famous harbours, such as Rio de Janeiro on the eastern coast, Valparaiso on the west and Cartagena on the north.

Islands

There are not many islands off the coast of South America. Trinidad off the northern coast, is one of the most important. The

Strait of Magallan separates Tierra Del Fuego (Land of Fire) from the southern tip of the mainland. The Falkland lie east of the southern end of the continent. The Galapagos Islands are on the Equator, west of the mainland.

A broad chain of islands lie off the western coast from 41° south latitude to Cape Horn. Geologists think these islands are the tops of ancient mountains. Marajo, an island about the size of Denmark, lies at the mouth of the Amazon river.

Climate

Since the continent of South America is triangular in shape, the greater part of it lies in the Tropics. The area south of the Tropic of Capricorn decreases in width and its climate is greatly modified by the oceans on the east and west. The high altitude of the Andes, situated towards the west of the continent, has its effect on the climatic condition

Temperature

All of South America, north of Rio De Janeiro falls within the tropics. In the plains of the Orinoco, Amazon and upper Paraguay, the mean annual temperature is above 20°C (68°F) but in the eastern highlands and in the western mountains, the altitude lowers the temperature below this average. In the equatorial regions, the range of temperature is very little as for example in Manaos, where the annual range is only 2°C. The region in the middle latitudes which is in the shape of a triangle with its apex towards the south, has no area sufficiently far from the sea to have the extremes of temperature, that are typical of continental interiors in high latitudes. However, the effect of the warm Brazilian current that flows along the east coast and the cold Humboldt current on the west coast is reflected on the mean annual temperature of Valparaiso 161°C (61°F) and Buenos Aires 21 6°C (71°F).

Rainfall

A considerable part of the continent lies in the region of abundant conventional rains and the equatorial belt receives rain at all seasons.

The north-east trades blowing towards the Guiana highlands give relief or orographic rains to the coastal districts of these regions. On the eastern slopes of the Andes also the orographic rains are heavy. On the west coast, about the Tropic of Capricorn, there is a dry region due to the fact that the winds blow off-shore or parallel to the shore and that the cool Humbol or Puruvian curient does not help in the process of condensation of water vapour in the clouds. Actually in the Atacama desert there is absolute draught. Central Chile has the Mediterranean type of climatie with winter rains. Further south comes a belt which lies at all seasons in the trackes of the westerlies. The Andes are barriers to westerlies and the warm and moist winds yield heavy rainfall to the western slopes but on the eastern or lee side of the moutain chain, there is a dry region, Patagonia, swept by cold dry winds. There is also another dry region, the Bolivia Plateau, which is shut upon all sides by the mountains.

Soil

Almost half the continent of South America consists of soils of the tropical area. The region north of 20°S latitude consists of tropical forest and grassland soils except for areas of high relief where there is complex soil associations. The Delta region of Paraguay and Uraguay river has the fertile chernozomic soils. Most of the area south of the 20°S consists of desert soil or chernozomic-desertic soil except areas of the high relief.

Natural vegetation

In South America, natural vegetation shows a simple pattern of arrangement which is related to rainfall and configuration. The hot, wet lowlands of the Amazon Basin and the coastal lands of Guianas—Venezuela Ecuador and Columbia—are covered with tropical forests. The Amazon Basin is the largest area of Equatorial forest in the world. The Guiana and Brazilian Highlands and the greater part of Orinoco Basin are covered with Savannas or tropical grasslands, known as illanos in the Orinoco region and campos in Brazil. The warm temperate forests of the Gran Chaco are found to the south-west of the Brazilian highlands in the upper Parana Paraguay basin. Further south, the temperate grassland, the Pampas of the Argentina and Uruguary extend from the Atlantic coast to the foot-hills of the Andes. Patagonia, in the southern Argentina, is a region of poor steppes and semi-desert.

The western Cordillera has a typical mountain vegetation ranging from tropical forests to perpetual snow. On the west of the Andes, in the tropics, a hot desert occupies the rain shadow region. To the south is the small area of Mediterranean vegetation in the central Chile, which gives place to cool temperate deciduous forest in the southern Chile.

Animal life

South America has a variety of animal life and has certain kinds of animals which are not found on other continents. They include certain toothless animals such as vampire bats, slothe, anteaters and armadillions. The tapir is the largest native mammal. South American jaguars are savage and the most powerful of the continent's flesh eating animals. The rivers have may kinds of fish and alligators.

The Llamas and the Alpaca, which are both related to the camel family, are the only native wild animals which have been tamed for domestic use in South America. The sure footed Llama and Alpaca are used as beasts of burden in the high Andes. They are raised mainly for their wool, specially the wool of the alpaca is one of the best fibers known for making beatuiful cloth that is soft and warm.

4. TEACHING HINTS

1. The lesson may be introduced, if possible, by a film-show depicting the physical features of South America.
2. Collect pictures of deciduous trees, tropical forests, cattle ranches, Lama, Alpaca, Volcano, fold mountains, etc.
3. Ask the pupils to prepare a relief model of South America by using clay, plaster of paris, papermachie or plasticine.

4. Mark on the outline map of South America the following major rivers and peaks:

   Amazon
   Parana-Paraguay
   Lake Poopo
   Aconcagua
   Chiborazo
   Uruguay
   Lake Titicaca

5. Get the temperature and rainfall data for the following places:

Quito	(Ecuador)
Manaos	(Brazil)
Rio de Janeiro	(Brazil)
Buenos Aires	(Argentina)
Lima	(Peru)
Valparaiso	(Chile)
Santa Cruz	(Argentina)
Bogota	(Colombia)
George Town	(Guiana)

   Draw bar diagrams and use these to explain the climatic conditions in each place.

6. Have the pupils mark the desert areas of South America. Let them find out how man has utilized the barren lands for his use and benefit.

7. Through reading and class discussions, pupils should become aware of the following:

(a) The influence of mountains on pattern of precipitations.

(b) The influence of mountains on transportation routes.

8. Draw a map of the west coast of South America and on it show the direction of prevailing winds in summer and winter.

Distinguish between the areas receiving rain at all seasons, little or no rain and rain during winter only.

5. EVALUATION

I. Match the following by making correct pairs from the two columns given below :

1. Amazon	(a) Desert
2. Selvas	(b) Tropical forest
3. Humbolt	(c) Lake
4. Campos	(d) Volcano
5. Pampas	(e) Current
6. Atacama	(f) City
7. Cotopazi	(g) River
	(h) Savanna
	(i) Steppe

II. Complete the following :

(a) Name of two animals used in the high Andes as beasts of burden............ .....

(b) The savannas in Orinoco region are called... . ...

(c) Peruvian current is a... . ...current but the Brazilian current is....... ....

(d) Lake .. .. is an example of inland drainage.

(e) The equator passes across the mouth of. .... river.

(f) Ocean liners can go up the Amazon river upto.. ....

III. Atacama is a desert area because :

(a) This region is near the Andes mountain chain.

(b) It lies on the path of the Westerlies.

(c) The cool Humbolt current running near the coast does not help the winds to absorb water vapors.

(d) The western Cordillera near this region is not enough to obstruct the moisture laden winds to yield orographic rain.

(e) Cacti and other desert plants grow in this area.

IV. The major portion of the Amazon basin is covered with tropical forests because—

(a) the eqator passes through this region.

(b) the constant high temperature and the heavy conventional rainfall contributes to the growth of tropical forests.

(c) the waters of Amazon, one of the longest rivers in the world, assist in the development of tropical forests.

(d) they are found near coastal areas.

(e) of the heavy orographic rain in the basin due to the Andes.

V. Answer the following :

1. How does natural vegetation affect settlement and transport in tropical forest areas ?
2. Could you explain the reason for the low precipitation in Central and Southern Argentina
3. The Amazon basin receives heavy rainfall during most of the year. Why ?
4. Describe the natural vegetation on the eastern and western slopes of the Andes in their different sections and show how it is related to climatic conditions.

II

Livestock and Agriculture in South America

1. OVERVIEW

SOUTH AMERICA is called Latin America, because it was discovered and colonised mainly by the people of Spain and Portugal. Its social, political, economic and cultural life has been moulded by the colonial system established by the Spainiard and the Portugese. It is the fourth largest continent in the world, like the other southern continents, it is predominently agricultural and pastoral. It leads the world in the production and export of coffee and also occupies a high place in the export of cereals, like wheat and maize, oil seeds, like linseed and animal products of meat and wool Agriculture is confined mostly to the South-east coastal plains of Brazil, North and Central Argentina, Paraguay, Uruguay and Central Chile, while livestock is concentrated mostly in Argentina and Brazil. In fact, the 'ABC' states of South America, (i.e Argentina, Brazil, and Chile) are economically more important than the rest of this continent, which are either regions of very high mountains and plateaux or deserts, or regions of high rainfall and impenetrable forests.

Although there is a rapid growth of heavy industries in South America, chiefly in Brazil and Argentina, during the last few years, agriculture and stock raising are still the basis of the prosperity of South America. The bulk of the exports of this continent are products of agriculture and pastoral industries.

South America provides an example of how the introduction of mechanised agriculture and refrigeration methods in meat industry has brought about a revolution in the economy of that country

2. SPECIFIC OBJECTIVES OF TEACHING

A. *Acquisition of Knowledge*

The pupil recalls and recognizes—

1. the topographic and climatic conditions in South America and their influence on agriculture and livestock raising.
2. the meanings of certain terms like Campos, Llanos, Pampas, Estancias, etc.
3. the importance of South America as a major producer and exporter of coffee, cocoa, wheat, meat and wool.
4. the major agricultural and livestock raising regions of South America.

B. *Development of Understanding*

The pupil develops understanding of the following major ideas and concepts ·

1. Agriculture and pastoral activities not only provide employment for bulk of the population but also provide main exports.
2. The low population density has enabled mechanisation more on the farms.
3. The introduction of refrigration in ships has made possible an increase in the export of meat and dairy produce.
4. The development of agriculture and livestock raising in certain regions of South America has been facilitated by growth of transport and port facilities.

C. *Application of Knowledge*

The pupil—

1. realises the relationship between the topographic and climatic conditions and land use for cultivation or livestock raising.
2. understands the significance of sparse population and shortage of labour on the development of pastoral industry.
3. compares the pastoral industry of Argentina with those of Australia, New Zealand and Denmark.
4. realizes the significance of modern innovations in breading cattle and sheep, provision of lead for animals, carring and transport of meat and dairy produce.

D. *Development of Skills*

The pupil—

1. learns to draw on an outline map of South America, major relief features, climatic and vegetation belts.
2. draws a sketch map showing the major regions of cultivation of coffee, cocoa, wheat, sugarcane and cotton.
3. marks on an outline map of South America areas of cattle and sheep raising, the main railway lines and roads and major ports.
4. draws diagrames showing production and exports of major commodities.

E. *Development of Attitudes*

The pupil appreciates—

1. the role played by South America as a producer of food products and raw materials.

2. the significance of the use of modern machines for work on the farms.
3. the close relationship between climate and soil on land use.

3. CONTENT

General

1. South America, almost triangular in shape, is a vast continent about five times the size of India, but with a population of only 165 millions, or less than about third that of India.

2. Economic structure of Latin America (comprising Middle America and South America) has been based on colonial exploitation by the Spaniards and the Portugese. At first it was the exploitation of minerals but later foodstuffs and pastoral products were raised for export to the home country and other export markets. This picture, is still typical of Latin American countries, each state specialising in one of the primary products. For Chile it is copper (formerly nitrates), for Venezuela oil, for Brazil coffee, for Cuba sugar. Slight changes have taken place within this pattern but it has essentially remained the same. Chile's copper has replaced its nitrates for the first position, Brazil's agricultural booms have shifted from world rubber production monopoly to sugar exports (sugar is no longer produced for world market) and cotton boom. Now Brazil produces about 50% of the world's coffee.

The two world wars have brought about changes. During the wars the export markets were cut off and South America failed to get most of manufactured imports for which they depended greatly on foreign countries. This has speeded up the industrialisation of Latin America to achieve self-sufficiency in manufactured and industrial goods, often utilising their own raw materials (e.g using cotton in their textile mills). Argentina, Brazil and Chile respectively, the ABC countries of South America have gone farthest on the road to industrialisation with Columbia, Venezuela and Peru following their steps.

United States and many European nations are providing capital and equipment for a variety of industries. A great progress has been made in the food processing and textile industries. Although iron and steel plants have also begun to supply materials for the development of a variety of metallurgical industries, the products of primary raw material and foodstuff will continue to be dominant for a long time to come. In recent years, several industries especially heavy industries, have been started there. Still, agricultural and stock-raising occupations continue to be the basis of the prosperity of this continent. These occupations also provide a considerable portion of the continent's income and constitute the bulk of its exports.

Livestock

A large part of South America consists of grass lands, the tropical glasslands known as Llanos and Campos and the temperate grass land called the Pampas. These are suitable for stock-raising. Vast plains and uplands with natural grass and mild winters permit open-air grazing throughout the year. Cheap and plentiful land and thin population have led to the development of livestock in South America.

Sheep

It has been estimated that there are about 50 million sheep in the Pampas of Argentina, 18 million in Uruguay and about a quarter million in Patagonia (Argentina) which are the chief sheep-rearing regions of the continent. Sheep are also reared near the foothills of the Andes in Argentina and in Southern Chile, extending to Terra-del Feugo where they thrive well in grass land with 50 centimetres of rain or less. The Pampas, which are the chief sheep-rearing areas in Argentina, is a vast plain of grassland, relieved here and there by clumps of eucalyptus trees, surrounding the rancher's house. Tall steel-towers with windmills providing power for raising underground water for men, and livestock break the monotony at interval. From the Atlantic coast, rainfall decreases westwards and few rivers cross the Pampas. Hence, underground water has to be utilized for all purposes.

In the absence of coal or facilities for producing electric power, wind-power has to be used here for raising underground water.

Sheep are reared in South America both for wool and mutton. But sheep, which yield excellent wool, usually provide poor mutton and vice versa. But nowadays, the rearing of crossbreed sheep is becoming more important, so that if the price of wool falls, the farmers can take to meat export and vice versa

"Life on a sheep farm means hard work all the year round. In September, the young lambs are born, and as soon as they are ready to leave their mothers, they are branded with their owner's mark. When the warm December days begin, the sheep are clipped. The long shearing sheds echo and re-echo with the bleating of sheep and the whirr of the machine clippers. Here, a dozen men or so are all busy stripping the sheep of their woolly coats. On some farms the fleeces are sorted, graded and packed into bales for export. More often, however, they are sent to the wool markets of Bunos Aires, where they are sold for export to Yorkshire or some other woollen manufacturing area in Europe. Many sheep are despatched to frigorificos (meat-packing plants) and much of chilled and frozen meet is exported to England."

In April and May, when the autumn winds begin to blow, the sheep are dipped in medicated water to protect them against pests. They have now grown their coats once more and they will need them for the bleak winter that is almost upon them, and winter, especially in the Patagonian plateau, is very severe. One shepherd will probably have charge of several thousands of sheep and every day he must visit the paddocks, in spite of bad weather.

Cattle

Cattle require richer pasture than sheep Grasslands with cool, damp summers and warm, damp winters are best suited for the rearing of cattle. Unlike in Australia and a few European countries, the people in South America rear cattle more for beef than for milk. In the temperate lowlands of South America, including the Pampas, the lowlands of the Parana-Paraguay, and Uruguay rivers, South-East Brazil, Venezuela and the foothills of the Andes, in Western Argentina near Cardoba, cattle are reared. In the Tropical Grasslands, cattle-rearing is not so important because in these regions cattle are liable to be affected by tick fever and cattle diseases.

The region of the Pampas is the chief cattle-rearing area in South America. A little more than half a century ago, the Pampas were very sparsely populated with the natives and half-breeds of mixed natives and Spaniards. But in the course of half a century, this region has been changed astonishingly. By the introduction of pedigree stock to improve the herds, use of barbed wire fencing, windpumps for getting drinking water, cold storage in railways and steamers, the European settlers have changed the wilderness into one of the most fertile farming lands in the world. Argentina and Uruguay are among the leading stock-rearing lands of the world. On a rough estimate, about 42 million cattle and seven million horses are reared in Argentina and about 8 million cattle and six lakhs of horses in Uruguay.

Round about Buenos Aires, alfalfa grass, whose long roots enable it to suck water from a considerable depth and grow more luxuriantly than ordinary grass, is found in abundance. The cattle of Argentina thrive well upon this grass.

There are huge estates called" "Estancias" extending sometimes over 20,000 hectares and supporting about 20,000 cattle kept in paddocks with 1000 or more animals roaming in each paddocks.

The management of such an estancia requires much organisation. It is a self-sufficient society. Besides the care of the stock and crops there is a vast amount of work in looking after wire fencing, the blacksmith shops, the store, the electric light plant, the hospital and the dairy need constant attention. The owner probably lives in a luxurious house, set amidst well-planned grounds. The herdsmen called "Gauchos" dwell with their families in simple mud-huts. The gauchos have earned fame for their horsemanship and skill for rounding up the stock and breaking in backing colss. They have also less exciting work of riding round the estancia, repairing wire fences, dipping the cattle in disinfecting water, seeing that they are properly watered, looking for dead or sick animals, and greasing the windpumps. From time to time the gauchos drive the fattened cattle along the wide, wire-fencing tracks, to the railway stations, where, they are hustled up the gangway into railways trucks.

Cattle and sheep are taken to Buenos Aires, Rosario or La Plata, meat-packing plants called 'frigorificos' where their bodies emerge as frozen beef of mutton. The erection of these frigorificos, and the introduction of cold-storage plants on steamers made a tremendous difference to the Argentina ranchers. Before these inventions either salt beef and dried beef was in use or such animals as were exported to Europe often arrived in poor condition after their long sea-voyage. The demand for frozen meat brought prosperity to the farmers. They were able to improve their herds, fence with wire their paddocks, erect windpumps for raising water, and purchase up-to-date agricultural machinery.

At the same time railways were laid in the interior across the Pampas, which helped farmers move to the work and settle on new pastures in land. Today railways are used both for long and short distance transport.

Argentina is one of the leading exporters of beef in the world. It exports frozen and chilled beef, mutton, wool, hides, tallow, butter and cheese, but the value of all these is less than that of agricultural product like grains, flour and linseed. Brazil also exports beef. Uruguay also used to export much beef and mutton, but this is now decreasing. Dairy cattle are now being reared largely in Uruguay and about eighty per cent of the export of Uruguay are dairy products These are exported through Monte Video, the capital and chief port. In Central Chile, cattle and sheep are reared for meat, mostly for home consumption.

Some of the South American countries like Brazil and Argentina are rapidly expanding their manufacturing industries. Nevertheless, the agricultural and pastoral industries remain the backbone of the economy of this southern continent and they provide the bulk of the exports and earn foreign exchange.

Agriculture

General. Side by side with the development of livestock, agriculture also provides work for the bulk of the population of this continent. Agricultural occupations are carried on large estancias and these are largely mechanised.

The chief drawbacks of the farmer in Argentina are drought, hailstorm, locusts and fluctuations in world prices, all of which are difficult to guard against. In time of drought, crops wither and livestock die, hailstorms flatten the corn, clouds of locusts descend upon the crops, devour all plant life and leave the countryside bare against this menace. Early settlers depended on single cash crop like coffee which they cultivated not for home consumption but for sale to other countries. The prices of such crops fluctuated greatly in the world market. This resulted in heavy losses to farmers depending on single crops. Now diversified agriculture involving cultivation of several crops has minimised farmer's dependence on a single crop, they have some crops to carry them through even when prices of a cash crop fall in the world market.

CHIEF CROPS

The chief crops grown largely in South America, are wheat, maize, linseed, cotton, sugarcane, coffee, cocoa, and on a smaller scale, rice, castor, seeds tobacco, fruits and a little rubber.

Wheat The Pampas of Argentina are well-suited to grow large quantities of wheat. Argentina ranks second only to Canada in her export of wheat. The wheatlands stretch from the Atlantic shores to the foothills of the Andes. The large number of railways and the river of the Plate Estuary are used for carrying the wheat to ports for export. Rosario is one of the chief wheat-collecting centres in Argentina. Since Buenos Aires, the capital and chief port of Argentina, is unable to cope up with the ever-increasing export trade of this country, two sister-ports have been set up at La Plata and Bahia Blanca for exporting grains, meat, etc. Huge grain-elevators have also been set up at Buenos Aires, Rosario, La Plata and Bahia Blanca. December is a busy month at these ports, for then the grain boats are loaded.

Maize . Maize requires a growing season of only five months. It grows well in places having a mean annual temperature of 19°C, summer rain, and deep, well-watered soil. It grows largely in Argentina in the wetter parts of the Pampas and the region of the upper Parana-Paraguay, Uruguay rivers. In many of the countries of the world, notably the United States of America where this grain is largely grown, it is used chiefly as fodder for cattle But since Argentina grows alfalfa grass for feeding her cattle on a large scale, most of the maize grown here is exported.

Some of the Andean States also grow maize, but most of it is used as food for the local population. Some oats and barley are also grown in Argentina

Linseed: This is the seed of a plant and is of commercial use as an oil-seed. This oil is used mostly for being mixed with paints. Although it is grown in the maize belt of the pampas, the chief producing area lies in the doab between the Parana and Paraguay,. It is exported chiefly to the countries of Western Europe. Production of linseed in this part of the world has decreased in recent years. With a view to diversifying agriculture increased attention has been paid in recent years to the cultivation of grains other than wheat and maize, the chief being rice, sugarcane oil seeds and fruits. But most outstanding is the rise in production of cotton, not for export but for the use of Argentina's own textile mills. The area devoted to cotton has grown sixty times from what it was before First World War.

Cotton : Cotton grows well in good soil which is able to retain moisture. It needs ample rain in the early growing season, and a dry frostfree season of at least seven months in the year. Abundant, cheap labour is also required for picking. In South America, cotton is grown in the east and south-east coastal plains of Brazil, in Ecuador, Venezuela, and western Peru. In the Andean States, it is grown in the coastal desert regions with the help of water from hill streams and these places are called "little Egypt". In Brazil, after the coffee-glut which resulted in very low prices, many farmers took to cotton growing and during the period 1930-39, it increased nearly four-fold so that Brazil now comes fifth in the world's production of cotton. Many cotton mills have been set up now in the district of Sao Paulo in Brazil.

Sugarcane : Sugarcane is a tropical crop and grows well in the region of about 25°S with adequate rain and damp soil. The east coast of Brazil, Ecuador, Columbia, Venezuela, Peru and Guyana (British Guyana) are the chief growers of sugarcane in South America In Brazil, it is grown chiefly in the regions round Racife or Pernambuco. Paraguay and Western Argentina round about Tucumen also grow sugarcane utilising the water from the hill streams of the Andes. Brazil is the largest sugar-producing country in South America, while Peru comes second.

Coffee · Coffee is among the chief beverages of the world. The coffee-shrub bears a red cherry like fruit, with two coffee beans of greyish green colour. This plant grows well in regions of about 18° to 24°C of temperature all the year round but the soil must have good drainage and water should not remain standing around its roots. It therefore grows well on tropical hillslopes and plateaus. The plant also requires to be protected from the direct rays of the sun and so tall trees are planted in between the coffee plants for shade. Coffee grows well between the altitudes of 1000 to 1800 metres.

The plateau state of Sao Paulo in Brazil is the chief coffee producing region in the world, and produces about 50% of the world coffee. It is exported through Santos the 'coffee port.' Columbia produces about 15% of the world output. Venezuela, Peru, Surinam and French Guiana also grow some coffee.

In the 'Gran Chaco' area of Argentina, Paraguay and Uraguay, Erba-Mate tea is also grown, mostly for local consumption

Cocoa : Cocoa is used not only as a beverage but also in the manufacture of chocolate. Cocoa powder is got from the pod of the cocoa tree. This grows well like coffee in regions of temperature of about 26° C, 125 cm of rainfall, and well drained soil. The young plants need to be protected from strong winds and direct rays of the sun. Since cocoa requires deep soil and more heat and moisture than the coffee plant, it is grown in regions lower than those of coffee and closer to the equator. Brazil is the chief producer of cocoa in South America. It exports about 15% of the world's output of cocoa through the port of Salvador. Brazil is next only to Ghana and Nigeria (West-Africa) in cocoa production. Equador, Venezuela and Colombia also produce some cocoa.

Rubber . The Amazon region is the original home of rubber. Juice of the rubber tree, called the latex is collected by scratching the barks of the rubber tree. This tree grows well in regions having a temperature of about 27°C, about 200 cms of rain and rich, well-drained soil in the lowlands. The forests of the Amazon region, however, are so dense and the rubber trees are so far apart, that a number of other trees have to be cut down before reaching a rubber tree Hence it was a problem to collect and market this wild rubber from Manos, Para and other rubber collecting centres of Brazil. In 1876 a few rubber saplings were taken from here and planted at the Kew Gardens (Botanical Gardens) in London. From there these were taken to the British possessions of Malaya, Ceylon, south-west coast of India and so on, where the climate and other conditions favoured the development of large rubber plantations. As the rubber trees are planted in rows, the collection of the 'latex' becomes very easy in these plantations. Now these plantations produce nearly 90% of the the world output, and have become more important sources of rubber than the Amazon basin. Natural rubber is now facing keen competition from synthetic rubber. These factors have considerably reduced the importance of the rubber industry in Brazil, which now supplies only one per cent of the world total.

The other crops found in South America are a little rice in the coastal regions of the Andean States and Brazil, tobacco in Columbia and the lower Sao Franciso valley in Brazil, and castor beans in the coastal districts of Brazil. Incidentally, Brazil is also the chief source of castor beans in the world.

4. TEACHING HINTS

(i) The topic can be introduced after a film show of the activities of an Estancia or after exhibiting pictures of grain elevators or a scene in the Amazon forests.

(ii) The pupils my be asked to collect pictures of a guacho, cattle being taken to the meat-packing centre, or tractors and 'combines' at work in the wheat lands, coffee-curing operations: the alpaca, and the vicuna.

(iii) The pupil may be shown pictures illustrating process in sheep rearing, wool grading and processing or how dairy products are got ready, and how grain elevators work.

(vi) The pupils may be asked to list the agricultural and pastoral products of South America, and the ports through which they are exported.

(v) The pupils draw a pictogram comparing the wheat and meat production of South America with those of the other southern continents namely Australia, NewZealand and U.S.A.

(vi) The teacher may explain how the modern means of quick transport and communication and method of refrigeration are assets to the South American farmers.

(vii) On an outline map of the world provided to the pupils, they may :

(a) shade the areas showing the distribution of sheep, dairy cattle, beef cattle, wheat, coffee, linseed, and cocoa in South America.

(b) mark the important world markets for the above products and the ports of export in South America.

(viii) Discuss the factors which have helped the economic development of modern South America highlighting the role of international cooperation.

5. EVALUATION

1. Complete the following statements by choosing a correct ending from the alternatives given below:

(i) Coffee thrive well in region receiving :

(a) 10 cms of rain per year

(b) 25 ” ”

(c) 50 ” ”

(d) 60 ” ’

(e) 80 ” ”

(ii) In South America, sheep are largely reared in—

(a) Argentina (b) Brazil (c) Peru (d) Bolivia (e) Ecuador.

(iii) Cattle are largely reared for beef in—

(a) Paraguay (b) Venezuela (c) Guyana (d) Columbia (e) Argentina.

(iv) The basis for the prosperity of South America cantinues to be—

(a) Mining industry (b) heavy industries (e) agricultural and pastoral industries (d) fruit-farming (e) fishing.

(v) Beef produced in the Pampas is marketed in fresh conditon because :

(a) It is transported by air.

(b) New preservatives are being used.

(c) Refrigeration methods are available.

(d) It does not get stale quickly.

(e) The sea-breeze on the way prevents decay.

2. Some of the following statetments are true and some are false. Tick off those that are completely true and put a cross (X) against those that are false
   - (a) The farmers of the Pampas depend upon rivers for agricaltural purposes.
   - (b) The maize grown in Argentina is largely exported because the cattle are fed on the rich alfalfa grass.
   - (c) Fruits and sugarcane are grown near Tucumen.
   - (d) In Argentina, the export of manufactured goods is becoming more important than agricultural or pastoral products
   - (e) Brazil grows 15% of the world's cocoa.

3. Give brief reasons for the folowing :
   - (a) Underground water is utilised in Argentina for agriculture and stock-raising.
   - (b) The hill-streams from the Andes are utilised for irrigation in Mendoza and Tucumen.
   - (c) La Plata and Bahia Blanca have sprung up as new ports in Argentina.
   - (d) Tropical grasslands in South America are not very useful for rearing cattle.
   - (e) Coffee grows well in the district of Sao Paulo in Brazil.
   - (f) Open air grazing all the year round is possible in South America, unlike in other countries such as Canada.
   - (g) Much of the maize grown in Argentina is exported
   - (h) There are more railways than good roads in Argentina.

4. Explain each of the following terms in one or two sentences ;
   - (a) Latin America
   - (b) Overlanding
   - (c) Estancias
   - (d) Frigoricos

(e) Erba tea
(f) Gauchos
(g) Fazenda

5. Substitute the following by a word or phrase :
   (a) An agricultural product used in the preparation of chocolate.
   (b) The State in South America which has the largest number of sheep.
   (c) The grasslands of South America in the temperate region.
   (d) The method of preparing meat for export to distant places.
   (e) The methods adopted for handling grain in bulk.
   (f) The type of grass that can draw water even from very deep places and grow luxuriously.

6. Imagine yourself to be the owner of a big estancia in Argentina and write a letter to your friend in India explaining the daily routine of your work there.

7. Explain the position of cattle-rearing in South America before and after the introduction of the modern methods of exports.

8. Describe the geographical factors favourable to the growing of coffee and cotton and mention the places in South America where they are largely grown.

9. Collection of rubber and growing of coffee, which were once very important in Brazil, have now been very much restricted. Why ?

10. Elaborate the following statement, giving geographical reasons :

    "The prosperity of South America still depends largely on agriculture and stock-raising."

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III

Argentina

1. OVERVIEW

Argentina, Brazil and Chile are the three most important countries in South America. They are also known as the 'ABC' states of South America. Argentina is an important meat and wheat producing country of the world. Her meat exports are the highest in the world market.

In size Argentina is almost as large as India but its population is hardly 5% as that of India. (Argentina about 20 million ; India about 500 million).

Argentina is situated to the South Brazil and to the East of Andes mountain chain. Most of Argentina is in south of the Tropic of Capricorn and hence it lies in the temperate zone. The two main rivers of Argentina are Parana and Paraguay. These two rivers combine before entering into the 'estuary' of the Rio de la Plata. Except for the Western Sub-mountainous part, the entire country consists of a level and fertile plain. The large area round the Rio de la Plata is a temperate grassland, known as the Pampas.

The name Argentina means 'the land of silver'. In the early days of the colonisation of the newly discovered countries of South America, the Spanish adventurers went to Peru and Bolivia and worked in the silver mines, which the native 'Inca' people of these countries had already discovered. In these early days they found it easy to transport the silver down the Paraguay river to its estuary ; from where the Spanish ships carried it across to Spain. Thus the name 'Argentina' (the land of silver) was given to this land. The silver plates were bought in boats to the estuary of the Parana—Paraguay. It therefore required the 'Rio do la Plata' (The Plate River).

Although Argentina is in the Southern Hemisphere, far away from the West European countries, the invention of refrigeration, modern techniques of land management (mixed farming) and rapid means of ocean transport, contributed to the rapid growth of the meat industry and grain production.

Although a very large quantity of beef is locally consumed, because of the small total population, the country is able to export an enormous quantity of 'chilled' 'frozen' and 'canned beef' to the densely populated countries of Europe. Argentina also produces about 8½ million tons of wheat, (India produces about 10 million tons). Again on account of the smaller population, Argentina is able to export a large percentage of its wheat.

Argentina is poor in mineral wealth, particularly coal and petroleum, although it is known to have large deposits of iron. Production of hydro-electric is not very useful for the country because of the long distance to the eastern coastal region, where most of the cities are situated, all the major industries of Argentina centre round the processing of cattle and agricultural products, like butchering, freezing and canning of beef and flour milling. The country at present imports more of machinery, fuel and textile goods.

2. SPECIFIC OBJECTIVES OF TEACHING

A. Aquisition of Knowledge

The pupil knows—

1. the location, size, and physical features of Argentina.
2. the climate of Argentina.

3. the natural regions of Argentina.
4. that Argentina is almost as large as India but its population of 20 million is too small when compared with India's population of about 500 million.
5. that the principal occupations of the people of Argentina are cattle rearing, wheat cultivation and sheep rearing.
6. that in the western dry areas along the eastern slopes of the Andes irrigation is possible for the production of sugarcane and fruits near Tucuman and Mendoza.
7. Argentina is poor in mineral wealth.
8. the Plate river and the railways are the chief means of transportation.
9. the name of the principal towns and ports of Argentina.
10. understands such terms as the 'Pampas', Estancias (estates), Refrigeration, chilled meat, frozen meat and canned meat.

B. Development of Understanding

The pupil develops understanding of the following major ideas :

1. Argentina is principally an agricultural country, devoted to pastoral activities and employs modern techniques.
2. The main characteristic of Argentina's physical features is its level and fertile low lands, suitable for farming activities.
3. Lack of mineral wealth and power resources are the principal handicaps which prevent Argentina from developing manufacturing industries.
4. Argentina's most important products are beef, wheat, and wool which are largely exported to other countries.

C. *Application of Knowledge*

The pupil—

1. compares the agricultural and postoral occupations in South America with those in India.
2. discriminates between sheep for meat and sheep for wool, chilled and frozen meat, topography of the Pampas and Andes, etc.
3. sees the conditions favourable for sheep and cattle rearing and for the growing of different crops, and
4. sees the relationship between the pastoral and agricultural activities on one hand and the physical features and climatic conditions on the other.

D. *Development of Skills*

The pupil –

1. locates on a map of South America, Argentina, its rivers, railways and important cities.
2. prepares a relief model of Argentina with clay or plasticine to show the level plain of the Pampas.
3. prepares simple bar diagrams showing exports and imports of Argentina and interpret them.

E. *Development of Attitudes*

The pupil—

1. appreciates the fact that the advancements in Science and Technology have contributed to greater production and prosperity of the nation.
2. appreciates the hard life of the Argentina, cattle and frozen meat, topography of the Pampas and Andes, etc.

III. CONTENT

Location

Argentina and Chile together form a triangle which constitutes the southern part of South America. In the north, Argentina stretches over into the tropics and in the south only 800 kilometres of water separate it from the Antarctic continent. On the western side it is bounded by the Andes mountains and on the east by the Atlantic Ocean. It tapers down to a narrow point at Tierra del Fuego.

In size it is almost as large as India. It is about a third the size of Brazil and over a third the area of continental United States. In South America it is second in size only to Brazil. It has an area of 2764800 square kilometres.

Population

According to the 1966 estimate, its population is 22,187,000. Most people live in the fertile Pampas round Buenos Aires. This capital alone has a population of 3,876,000. A quarter of the population is made up of foreigners and recent immigrants whose origin is either Italian or Spanish It differes from South American States in that its population is mainly composed of Europeans. The native Indian population is slowly declining. The natives are the Inca' people of this country. The population of South America illustrates different ways in which the continent has been developing.

Physical features

Argentina may be divided into four physical regions ·

(1) The pampas, a level and fertile plain of grassland in the east (2) the forested region of he Gran Chaco lowlands in the north of which the heavily forested swampy region is called the Mesopotamia, because it lies between two rivers, the Parana and the Uruguay (3) the arid and semi-desert areas of the sub-Andean region in the west, and (4) the arid region in south Patagonia.

1. The Pampas is the most important region of Argentina. It forms a semi-circle around Buenos Aires, to a distance of about 560-640 kilometres. It stretches to Santa Fe in the north, to Cordoba and S. Luis in the west and to the coast south-west of Buenos Aires. Its soil is rich alluviam where alfalfa or Lucerne is now extensively cultivated for fodder. This grass enriches the soil in it the nitrogen content.

2. Between the foothills of the Andes and the river Paraguay in the north of Argentina is a swampy forested plain known as the Gran Chaco or the great hunting ground. The region forms a link between the tropical and temperate grasslands. It is inacessable and insect-ridden. The Quebracho trees which abound here yield an extract useful for tanning.

3. The Sub-Andean region is a strip of hilly and mountainous country lying to the west of the grasslands and the Gran Chaco up to the crest line of the Andes. This region extends southward to the valley of Rio Colorado. It has for the most part mountains or hill ranges separated by deep valleys.

4. The Patagonian Plateau lies South of the Rio Colorado and ranges in height from 3000 to 9000 metres above sea level There is hardly any coastal plain except near the mouths of the larger river valleys.

Rivers

One of the great river systems of South America is the Parana-Paraguay in Argentina. This system includes the Parana, the Paraguay and the Uruguay They drain the eastern slopes of the Bolivian Andes and the Southern slopes of the Brazilian highlands. The Paraguay takes its source in the Pilcomeryo in the Andes and the Parana from the Brazilian highlands. The Parana has cut a broad valley in the highlands along which it flows with a number of falls. South of the Plate estuary numerous short rivers drain the eastern slopes of southern Andes. It has many lakes, though none of them is large. The most beautiful ones are those in the mountains of South Argentina.

Climate

Argentina experiences hot summers, mild winters and heavier summer rainfall from the south-east Trades Patagonia with warm summers, cool winters and very little rain is in the rain shadow of the Andes from the westerlies. It is warmed by the Atlantic current Terra del Fuego, the southern-most tip, is very cold Since this is south of the Equator its summer and winter are the reverse of our summer and winter seasons.

Argentina can be divided into two main climatic divisions, the northern and southern regions, the Rio, Neigo separating the two The northern division is sub-divided into, the Littoral, the Central and the Andean. All the three divisions get most of their rain in summer, the Littoral being the most maritime and the Andean province the most continental. The Andean province contains a large area with mountain climate and many peaks of the mountains, have perpetual snow. There is a wide difference in respect of rainfall in these three regions. The mean annual precipitation in the Littoral is 75 cm and it is less than 20 cm in much of the Andean provinces, where the distress caused by drought is very serious

The southern Patagonian region is in the belt of the Westerlies and falls on the rain shadow of the Andes. The scanty rainfall of Patagonia is partly due to the cool Falklands current since the winds from the east blowing over the cool sea gives little rain. The mean annual rainfall at Santa Cruz is 15 cm.

Vegetation

The upper valleys of the Parana and Paraguay getting constant rainfall from the south-east Trades have warm, temperate forest which is between the Brazilian savanna in the north and the Pampas in the south. The temperate grasslands known as the Pampas are wide stretches of treeless grassy plains in the Plate estuary. It has become one of the most important granaries and pastures in the world. To the west and south of the Pampas lies the Patagonian Scrubland. It is low Plateau of light rainfall with cold winters It is a thorny scrubland. The scrubs and coarse grass improve to good pastures in the valleys and foothills of the east and south.

Agriculture

A little more than half a century ago the Pampas was a sparsely populated region. To-day it is one of the richest farming areas of the world because of the introduction of pedigree stock, barbed wire fences, wind pumps, modern agricultural machinery, railway and fast steamers with cold storage facilities.

Wheat · One of the chief sources of wealth in Argentina is wheat. It is one of the greatest suppliers of wheat in the world. It ranks next only to the United States and Canada in her export of wheat. The wheat belt stretch from Santa southward to Bahia Blance. This is one of world's great temperate grasslands. It has been developed from a purely pastoral into a cultivated area. Vast fields are devoted to the cultivation of wheat and fodder crops. The great farms of the wheat lands are called 'estancias'. The word 'pampa' itself means 'space'. The eastancias or the pampa ranches cover thousands of square kilometres. The wheat belt lies where the annual rainfall is between 50 cm.—100 cm.

Maize . The maize belt in Argentina lies in the wetter and warmer parts of the grassland, mainly in the northern part of the fertile Pampas where the climate is most favourable. This region has a distinct advantage for export over other world producers, in being close to the sea coast, which makes possible inexpensive shipment of bulky corn to European markets. Argentina growers favour flint corn which is hard, absorbs little moisture and therefore ships better and has a better overseas market than other types.

Sugarcane : On the eastern slopes of the Andes from snow fed streams, extensive irrigation schemes have enabled the growth of sugarcane. This area, being in the tropics, gives the necessary sunshine for the growth of the cane. The province of Tucuman, Jujuy and Salta are the sugar producing regions. Sugar is refined at Tucuman.

Flax · Flax crop is grown for fibre (linen) and for seed (linseed) Linseed oil is used largely in paints and varnishes because of its superior drying qualities. It is also of value for linoleum, oilcloth, printing inks, soaps and as a binding agent.

It is grown in the wheat and maize belts of Argentina. Prior to World War II, Argentina dominated in the production and export of linseed but now it is only second to United States in its production. Argentina's decline results from a combination of factors. During World War II, export was prohibited by the government and the oil was used domestically for heat and power. Government policies too have influenced recent production. There is also competition between flax and wheat and flax and corn.

Grapes : The irrigated areas near Mendoza and San Juan, the sub-Andean region is devoted to the growth of grapes. Since the South American grape season is different from that of North America, there is a considerable trade in fresh grapes. Mendoza utilizes its grapes almost exclusively for wine, while San Juan packs raisins and fresh table grapes, in addition to wine.

Cotton : Since World War I, Argentina has developed the cultivation of cotton in the Chaco lowlands in the north. It ranks after Brazil and Peru as a producer of cotton in South America

Cattle . Cattle are widely grazed throughout the Pampas. The chief stock-rearing area is in the south-east of the province of Beunos Aires. The land is sown with alfalfa which is more luxuriant than ordinary grass. Cattle fed on it are brought to prime condition sooner than otherwise. Sheep are grazed on the Pampas and in Patagonia but most of them are found around Buenos Aires.

Cattle can stand a warm and wet climate whereas sheep need a cooler and drier climate. Therefore cattle are found on the lands near the coast and sheep farther inland where it is dry, and farther South where it is cool. The cattlemen of Pampas are called 'gouches'. Cattle are reared mostly for their meat. It sent to factories where the meat is made so very cold that the natural moisture in it is turned to ice. Then the forzen meat is packed into special cold rooms on board ships so that it does not melt. If meat is kept in this way, it will remain fresh for years. A great deal of meat from Argentina is tinned or salted or dried. But the freezing is the most interesting process because it is a modern invention.

Manufacturing

Meat packing industry is the leading manufacturing industry of Argentina. The great meat packing plants are called 'frigorifices' which are mostly owned by American and British investors. Most of the meat sent out of the country is either frozen or chilled. An important part of Argentina's meat industry is the tanning of the hides. More than half of the hides on the world's market come from Argentina. The country leads in the export of meat and hides, in the world

Flour milling ranks next to meat packing industry. There are also a number of cotton and woolen textiles as well as factories which manufacture shoes, clothing and household articles. Industrialization of all type has been expanding rapidly in the country.

Communication

A network of railways has been constructed in Argentina especially in the Pampas. A trans-continental line connects Buenos Aires via Mendoza with the Children port of Valparaiso. It crosses the Andes in the Uspallata pass through a tunnel of two miles. The railway to Tucuman in the sugar area is continued to Bolivia and will eventually become part of a Pan-American railroad. Other lines run to Paraguay, Uruguay and Brazil in the north and to Bahia Blanca in the south. The Parana and the Paraguay rings are navigable. There are five commercial airlines and it is possible to fly from one Argentina City to another and from Argentina to other American and European countries.

Argentina is the most advanced of the South American States. Its rapid development is due to the production on a large scale of articles for which there is a great demand in the countries of western Europe. The flatness of the country has facilitated the construction of network of railways which has enabled the rapid extension of agriculture and stock-farming. This and the use of modern method of transporting meat by cold storage have been responsible for the rapid growth of the foreign trade of the oil.

4. TEACHING HINTS

1. Have pupils look at a wall map showing relief of South America and trace the Andes mountain chain ? They note that the Andes is the highest mountain in the New World. Here pupil can note the number of mountains that are between 7000 and 8000 metres and should be able to locate quite the capital of Ecuador. Moving on into Peru, Bolivia, Chile and Western Argentina, pupils will reach the summit of the Andes (Mount Aconcagua, 22,835 feet). Some who have special interest in mountains may like to locate and name all peaks that are over 7000 metres. Have the students notice the elevation of the other parts of the country and then judge the effect of these mountains on the climatic conditions of Argentina ? Discuss with them the reasons why these high mountains affect Chile. Let the pupils locate 'Christ of the Andes' (a statue of Christ erected in 1904 to mark the peace treaty between Chile and Argentina) in the Uspallata Pass.
2. Let the pupils write an essay describing a journey through Uspallata Pass from Chile to Argentina.
3. Pupils may be asked to collect information about the wheat production in India and the countries from which India supplements her wheat needs.
4. Collect pictures to make an album on the topic, 'wheat farms of Argentina'.
5. Take the students on a excursion to a Refrigeration Plant. if possible, and observe the working of the plant, method of preserving perishable goods and meat, etc
6. Imagine that you are living on ranch in Argentina and describe your life to a friend in India.

7. Compare and contrast the wheat farmlands of Argentina with those of India. How are the wheat farms in Argentina similar to those in the United States of America ?
8. Draw a pictorial diagram of Argentina to show the different crop belts, the cattle and sheep rearing regions and the manufacturing areas.

5. EVALUATION

I. Essay Type

1. Describe the pastoral activities of cattle farmer in Argentina.
2. Why has not Argentina developed large manufacturing industries ?

II. Short Answer Type

1. Why are the lands bordering the Andes in Argentina in need of irrigation ?
2. The cattle ranches of Argentina are close to the estuary of Rio-de-la-Plata. Why ?
3. Why do the people of Argentina speak 'Spanish'?
4. Why has Argentina not developed Hydro Electric Power on a large scale ?
5. Why is a close network of railways found in the Pampas region ?

III. Objective Type

A. *Multiple Choice*

1. Buenos Aires has a large meat-packing industry because—
   (a) The people of Argentina are not kind to animals.
   (b) The region round Buenos Aires is the largest cattle rearing area.

(c) The climate is suitable for the industry.

(d) The people living in Buenos Aires eat plenty of beef.

(e) The people in Pampas are skilled in slaughtering cattle.

2. It was difficult to construct a Transcontinental Railway from Argentina to Chile because :

(a) Labourers were difficult to get.

(b) Argentina and Chile are enemies.

(c) Crossing the Andes was very difficult.

(d) The people of Argentina did not wish to go to Chile.

(e) There were dense forests on the way.

3. Argentina exports a large percentage of the wheat it grows because :

(a) There is a large surplus available on account of its small population.

(b) The people of Argentina want to earn more foreign exchange.

(c) The European countries are in need of Argentina's wheat.

(d) There are many natural harbours in Argentina.

(e) The people of Argentina wish to help other countries.

B. *Match the following* .

1. Patagonia
2. Mendoza
3. Uspallata
4. Buenos Aires
5. Tucuman
6. River Paraguay

1. Quebracco logs
2. Frozen Meat
3. Sugar refineries
4. Petroleum
5. Mountain Pass
6. Wine
7. Grasslands
8. Lake

4 The following figures show meat export from Argentina :

1961	...435,700 tons
1962	...570,200 tons
1963	.. 871,000 tons

Study the above figures and answer the following :

(a) Is the export trade in meat growing or declining ?

(b) Give two reasons for your answer.

IV

Brazil

1. OVERVIEW

Brazil is an immense country ; only U S.S.R., China and Canada exceed it in area. It is the biggest nation of the Southern Hemisphere both in size and population. Yet it has vast areas, mostly in the Amazon Basin, that are uninhabited or very thinly populated. The population is concentrated in the eastern region where the Sao Paulo region with 225 persons per sq. km. has the densest population.

Brazil is 92 times the size of Portugal of which she was once a colony. It is due to this political connection that the language of the country is Portugese. Of her 82 million people, many are of the Portugese, Spanish, Italian and other European descent, but the majority have pure or mixed Indian blood, while the rest, mostly on the east coastlands, are of negro or partly negro origion. One remarkable fact about Brazil is almost complete absence of colour bar , people of different races and from different parts of the world have been encouraged to settle in this country.

With the exception of extreme southeast (7% only) Brazil is wholly within tropics. The character of its tropical climate is reflected in its chief products : Coffee, Cocoa, Rubber, Cotton, Sugar and the like.

The eastern regions were the earliest to be settled and developed by the portugese. It was the success of the early plantations in the coastal areas especially in the north-east which laid the foundation of the American empire of the Portugese. It was the sugarcane plantation of Salvador (founded in 1502) and Recife (founded 60 years later) worked by imported negro slaves that provided at that time most of the world's supply of sugar. It was also the planters of this north-east region that provided the leaders of the Brazilian nation ; they built beautiful churches and towns with their newly acquired wealth and laid the foundation of Brazil's cultural heritage. The fertile coastlands, attracted early settlers and then people colonised the tableland in the hinterland. These are still the most densely populated part of Brazil. The railways, roads and airways and programmes of economic development are now attracting people to the vast and sparsely populated interiors.

From the equtorial lowlands, rubber and cocoa are obtained. Coffee is produced in the hills bordering these coastlands. Brazil produces about 50% per cent of the world's coffee. Sugarcane is grown widely in the coastal region. Cocoa and cotton are obtained from the more northerly coastal strip.

Cattle are very extensively reared on the Brazilian plateau Cattle rearing has also become an important industry in the extreme South of Brazil. The vast natural pastures support great number of cattle and sheep. Frozen meat and other animal products, raised on the ranches of the campos form an important part of its export.

Brazil is rich in minerals It was noted for its diamonds and gold in the past but now its chief mineral wealth is in rich deposits of iron and manganese. A great iron and steel plant built at Volta Redonda started production in 1948. Brazil is no longer dependent on imported iron goods. The mineral possibilities are very great and Brazil has a tremendous reserve of potential wealth. The inadequacy of capital, paucity of labour and unhealthy climatic conditions in the north are obstacles for the improvement of the country. Because of the vastness of the country and its economic possibilities, the country is sometimes described as a sleeping giant.

2. SPECIFIC OBJECTIVES OF TEACHING

A. Acquisition of Knowledge

A pupil recalls and recognizes :

(i) The location of Brazil in South America.

(ii) The main relief features and climatic characteristics (particularly the fact although Amazon is not as long the Nile, it drains the largest volume of water in the world).

(iii) The natural regions.

(iv) Factors favourable for coffee production and its importance in world trade.

(v) Distribution of mineral wealth and the fact that of late, Brazilians are taking to the manufacturing industries to become self-sufficient.

(vi) Terms such as equatorial forest, savanna, campos, meat-packing, refrigeration, etc.

(vii) Application of scientific methods to agriculture and production and export of agricultural commodities.

B. Development of Understanding

The pupil develops a understanding of the following major ideas :

(i) The most important in Brazil is coffee which is a foreign exchange earner.

(ii) The highest population density is along the Eastern margin of the Highlands and the adjoining coastland.

(iii) The economic prosperity of the country depends upon its exports. Industrialisation of the country is proceeding at a rapid pace.

(iv) Since Brazil is a storehouse of minerals, there is a great scope for the development of manufacturing industries.

C. Application of Knowledge

The pupil—

(i) understands why coffee is grown abundantly in Brazil and why it is not so in India and other countries.

(ii) compares the Brazilian Ports and their rich hinterlands with the other parts of the world.

(iii) understands how the equatorial climate influences human activities.

(iv) compares the forest and the rivers of Brazil with those of India.

(v) understands the attempts made by the people, who are clearing the Amazon forest, for their settlement.

(vi) sees the relationship between the decline of rubber industry in Brazil and the increasing importance of rubber plantations in Kerala, Ceylon and Malaysia.

D. Development of Skills

The pupil learns—

(i) to locate main features and to show important data about Brazil on an outline map of South America.

(ii) to prepare a simple bar diagram depicting the imports and exports of Brazil.

(iii) to prepare a comparative bar and wheel diagram showing the leading coffee, cocoa, sugar and cotton producers of the world.

E. Development of Attitudes

The pupil appreciates that—

(i) people of many races and different communities can live together amicably and help each other in developing a common culture and a progressive economy.

(ii) a developing country can raise the standard of living of all its people by the application of science and technology in the development of resources.

3. CONTENT

Brazil lies in the Tropical zone. It extends between latitude 4°22, North and 33°45 South and longitude 34°00 and 73°15 West.

Its total area is 8,217 sq. km. It takes the first place among the Latin-American countries in area, population and natural resources. Stretching 3800 km from east to west and having the same length from north to south, it is the fifth largest country in the world, ranking after the Soviet Union, China, Canada and U S.A. It is bigger than entire Europe. All the other South American countries except Chile and Ecuador form part of the boundaries of Brazil to the North, West or South

Physical features

In spite of its huge size, Brazil has a simple physical structure, a narrow coastland on the east, a huge plateau of very ancient rocks in the south, a great lowland river basin in the centre and the fringes of Guiana highlands in the north. Thus it can be broadly divided into four natural regions. They are (1) the Amazon Basin (2) The Brazilian Highlands and Campos (3) The Narrow Eastern Region, and (4) The Sub-tropical South-eastern region.

(1) *The Amazon Basin*

The great basin of the Amazon is bounded on the north and west by the Guiana Highlands and the Andean Mountains and spreads to more than half the area of Brazil. The Amazon, the second longest river in the world (only second to Nile, the worlds' longest river), carries a much larger volume than any other river. It flows relatively close to and almost parallel to the equator in most part of its course. The river frequently divides into numerous channels owing to the flatness of its bed. It enters the Atlantic Ocean through a huge delta.

The distributaries of the delta form numerous islands. Marajo is the largest island which, in area, is larger than Switzerland The Amazon is covered with some of the loftiest and densest vast evergreen forests of the world. These forests are called 'Selvas'. They have thousands of varieties of trees and dense undergrowth which greatly obstruct movement within them. Wild rubber and Brazil nuts are the only economic products from this region. The vast area of Amazonia has less than 3 million people, half of whom live near its mouth in the state of Para.

(2) *The Brazilian Highlands and Campos*

The Brazilian Plateau roughly triangular in shape is one of the largest old tableland areas of the world. Its base extends along the Atlantic coast, while the blunt apex is near the Falls of St. Anthony. The great plateau has a gentle slope towards north, its general level is 650 m. above sea level, seldom exceeding 1000 m. in the east. The greater part of the tableland has marked alternating wet and dry seasons. In the interior vegetation is of the savanna type-grassland with scattered trees or bushes. The Portuguese name for those grasslands of Brazil is Campos. In the dry region, there is thorn-forest vegetation but the coastal strip and the banks of the rivers are forested. Cattle ranching and mining are the important occupations of the people in the region.

(3) *Narrow Eastern Region*

The Tropical eastern margin has fairly heavy rainfall due to the south-east trade winds. This is naturally covered with tropical rain forests. It is a suitable climate for plantation products. It is well peopled and well developed. Sugarcane, cocoa, cotton, coffee, manioc and tropical fruits are all produced on a large scale. Coffee grows on the slopes of the tableland.

(4) *The South Region*

It enjoys a much rainy climate and more moderate temperature than the main tableland area. The natural vegetation is a mixed grassland and woodland. The Brazilian pine is grown in valleys here. The slopes down to the sea have an evergreen forest vegetation. This is the best developed and best peopled part of Brazil. Pastoral occupations are combined with agriculture in this advanced region. The outstanding crop here is coffee, the yield per acre here the twice that of the Sao Paulo region. But farmers here who are of European descent do not rely solely on coffee in other crops such as maize, cotton, tobacco and oranges are also grown. The sea coast, where it is hotter, produces pineapples and bananas, rice and sugar. In south-east Brazil, which is covered by pine forest, lumbering is an important industry.

II. Climate

As Brazil lies within the tropics, there is a uniform high temperature and a heavy annual rainfall over a vast area. The dominating factor in the climate of this part of the Americas is the trade winds. They blow from high pressure belts centering on latitudes 30°N and 30° S, towards the equatorial 'low' in the Amazon Basin.

The north-east and south-east trade winds, blowing towards the equator, bring heavy rain to the east and the coast region. The rainfall is increased in many areas by convectional rains. The Campos have a temperate climate with summer rains typical of such savanna region. The equatorial region has heavy rains during all reasons.

III. Agriculture

Brazil is the leading coffee producing country in the world. The area around Sao Paulo is one of the greatest producers of coffee in the world. At elevations ranging from 1000 to 2000 metres thousands of acres of well drained hill-sides are planted with coffee plants. They get rain from the south-east trade winds. Here the average summer temperature seldom exceeds 21°C. The mean annual rainfall is about 140 cm and the region has the deep red soil. These factors enable large scale coffee production.

In Brazil the coffee trees are kept within the height ranges of 8 to 15 feet to facilitate harvest and to keep the trees healthy. In India coffee bushes are not even 8 feet in height. The bulk of the coffee acreage is in large plantations in the area lying along the Tropic of Capricorn, inland from Santos in the state of Sao Paulo and inland from Rio de Janeiro in the state of Minas Gerais. Coffee is also a major crop in the states of Espirito Santo, Rio de Janeiro, Bahia and Parana.

The coffee grown in Brazil is not of such good variety as that grown in a few countries of Asia, like India, and some African countries. Hence the Brazil coffee finds a market in Europe and North America, generally after the coffee from the above named countries has been sold out. Then there is also over-production in Brazil resulting in fall of prices. In 1930, there was such a glut of this crop there, that at the instance of the Government, large quantities of coffee were dumped into the sea, to keep up prices. Nowadays, there is a tendency to restrict the acreage under coffee plantation, and many farmers are now taking to the cultivation of oranges, cotton or sugarcane, which are more remunerative. Still Brazil is the chief producer and exporter of coffee in the world.

Next to coffee in importance are cotton and cocoa which are grown in the southern and north-eastern states. Next comes corn This is grown here and there over the entire country. Sugarcane is raised and processed in the states of Pernambuco, Alagoas and Sergipe Rice is extensively cultivated along the coastal strip. Much fruit including grapes is grown in the southern part of Brazil.

Agriculture has assumed an increasing importance in recent years. The southern part of Minas Geraes grows maize, rice, beans, manioc, coffee, tobacco, sugar and cotton, as well as vegetable for the coastal towns

Amazon region is the original home of rubber. Juice of the rubber tree, called the latex, is collected by scratching the barks of the rubber tree. This tree grows well in regions having a temperature of about

27°C., about 200 cms of rain, and rich well-drained soil in the lowlands. The forests of the Amazon Region are so dense and the rubber trees grow so far apart, that a number of other trees and dense undergrowth have to be cut down before a rubber tree is reached. Hence it was a problem to collect and market this wild rubber from Manos, Para and other rubber-collecting centres of Brazil. In 1876, a few rubber saplings were taken from here and planted at the Kew Gardens (Botanical Gardens) in London. From there, these were taken to the then British possessions of Malaya, Ceylon, South-west coast of India and so on, where climatic and other conditions favoured the development of large rubber plantations. Here they were planted in rows like a graden. Collection of the 'latex' is also very easy in these plantations, and so they now produce nearly 90% of the world-output. Rubber now finds very large use in everyday life. But the rubber industry is now facing keen competition from synthetic rubber. These factors have considerably reduced the importance of the rubber industry in Brazil, which now supplies only one per cent of the world's total. Brazil is also the chief source of Castor beans in the world.

IV. Mineral resources

At one time Brazil was noted for diamonds and gold. Now its chief mineral wealth lies in its deposits of iron ore and manganese. Brazil is a large manganese producer. The chief mines are in the state of Mines Geraes. Manganese is worked in the south-west of the Matto Geraes. Iron deposite exist chiefly in Minas Geraes. Coal is found in Rio Grande De sul, Santa-Catherina, Parana and Sao Paulo. Gold is mined in Minas Geraes. The bulk of the world's monazite (used in the electrical industry) comes from Bolivia and other parts of Brazil. Brazil is the only world source of high-grade quartz crystal. There is a large production of chrome ore, mica, zireonium and beryllium ores.

V. Industries

One of the leading industries of Brazil is cotton-weaving. There are also silk, woolen and jute mills. The other main manufacturing industries are concerned with preparation of food stuff, such as meat-processing, sugar, wheat-milling, etc. However, frozen meat and other animal produce, obtained from the ranches of the campos, are not relatively as important as they are in Argentina and Uruguay.

Navigation and Communication

As there are practically no roads and few railways throughout the Amazon lowlands, transport is carried on almost entirely by water. The Amazon is navigable to the very foot of the Andes. Small vessels can go up-stream as far as Iquitos (Peru) 3440 kilometers from the mouth. Larger ocean-going steamers can reach Manaos, 1600 kilometers from the sea. There are 34400 navigable kilometers on the Brazilian rivers.

Railways have only been extensively built behind Rio de Janeiro and Sao Paulo. The railway line which is connected between Santos and Sao Paulo is called the 'coffee railway line'. The road pattern is almost like the railway pattern serving the same areas. Due to the absence of a network of railways in the Amazon Basin, airways are used for reaching the interior of the country.

Important Cities

Rio de Jaineiro : It is a former Federal capital and an important port. It is the second largest town in the Southern hemisphere. It has a magnificent harbour and a good aerodrome. It has good rail communication with its rich hinterland. Around the city iron ore and manganese are mined. Its manufactured products are cotton and woolen textiles, leather goods, furniture and flour. The chief exports are all tropical plantation products. Frozen meat and other animal produce are also exported.

Brasilia : The new capital of Brazil is a modern city and has recently been built in the heart of the Plateau and connected with Rio de Janeiro.

Rio Grande : In Rio Grande coal is found. It is the meat-packing establishment. It is the chief port distributing and manufacturing centre of South-east Brazil.

Para (Belem) : It is the chief port of the Amazon. It exports cocoa, manilla, tapioca, nuts and some rubber. It is connected with the Amazon by a canal.

Sao Paulo · It is the centre for coffee production.

Bahia · Much cocoa is exported from this port.

Santos . Coffee, Oranges and Bananas are exported. This port is called 'Coffee Port'.

Pernambuco (Recife) There are important sugarcane plantations in the Pernambuco district. Sugar is exported mainly from the port of Pernambuco.

4. TEACHING HINTS

1. The topic can be introduced with the help of a film or filmstrip on Brazil coffee production or tropical forests.
2. Elicit from the children the different types of beverages used in India such as coffee, tea, cocoa and their production trade, etc.
3. Ask the pupils to prepare a list of crops that are grown in Brazil.
4. Get the pupils to collect information regarding the life of the natives living in the Amazon forest and on a coffee plantation.
5. Draw on an outline map of Brazil, the different types of transportation routes in different colours and see the relationship between area of production and ports of export.
6. Collect pictures or make models that would help the pupils to distinguish one from the other in the following :

(i) A woodland and a forest

(ii) A grassland and a cultivated land

(iii) A port and a harbour

(iv) An open pit and shaft mine

(v) Brazil nut and castor bean

7. In a map of Brazil shade the area of production of coffee, cocoa, sugar, maize, cotton. Mark also the towns and cities which are connected with the above commodities in terms of production and export.

5. EVALUATION

I. Match the following :

A		B	
(i)	Rio de Janeiro	(i)	Forest
(ii)	Amazon	(ii)	Capital
(iii)	Selvas	(iii)	Grassland
(iv)	Campos	(iv)	Mountain
(v)	Brasilia	(v)	River
		(vi)	Sea port

II. Draw a bar diagram using the following data

COFFEE PRODUCTION

(In thousand Metric tons)

	Countries	*Year 1963*
1.	El Salvador	78
2.	Maxico	134
3.	Brazil	1,716
4.	Columbia	450
5.	India	55
6.	World	4,100

Answer the following questions :

(a) Which is the leading country in coffee production ?

(b) What per cent of the world total does Brazil produce ?

(c) What per cent of the world total does India produce ?

III. Complete the following by choosing the correct statements. Rubber export has grately declined because :

(a) The people of Brazil do not like to produce rubber.

(b) There is no suitable climate for the growth of rubber.

(c) Brazil has to compete with rubber plantation in Malaysia, Ceylon and Indonesia.

(d) The other countries are not importing the Brazilian rubber.

IV. In Brazil coal is not used in industries as power because :

(a) The Brazilian government does not encourage coal-mining.

(b) Brazil lacks coal.

(c) In Brazil transportation to bring coal from one place to another is costly.

(d) Brazil lacks manpower.

V. Food production has been very much neglected in Brazil because :

(a) The lands are swampy.

(b) The import of the food stuff is very cheap.

(c) Most of the areas of Brazil are covered with forest.

(d) The people concentrate only in the production of export crops.

(e) The people are used to eating much meat.

VI. Give reasons for the following in a word or phrase :

1. Brazil is lacking in good harbours.
2. The Amazon divides into numerous channels.
3. The tropical eastern margin has a heavy rainfall.
4. Rio de Jaineiro is the second largest town in the Southern hemisphere.
5. Pernambuco is famous for the export of sugar.

VII. Explain the important factors that are responsible for the growth of coffee in Brazil.

VIII. Give reasons for the following :

1. The Sao Paulo region produces coffee in abundance.
2. The Amazon is very useful for navigation.
3. Lumbering becomes important in the South-east Brazil.
4. Population in the Amazon basin is very sparse.
5. The factories in Brazil use much hydro-power electric.

IX. Write a detailed account of the exports of Brazil mentioning the ports from which they are exported.

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V

The Andean Republics

1. OVERVIEW

The Andean Republics consist of Ecuador, Peru, Bolivia and Chile. They lie on the western side of South America. These countries are termed as "Andean Republics" because of the continuous stretch of the Andes, through all these countries. Both the Equator and the Tropic of Capricorn pass through this region. The Equator cuts across northern Ecuador and the Tropic of Capricorn passes through northern Chile. Equador, Peru and Bolivia are completely in the tropics whereas the major portion of Chile is in the Temperate zone.

The west coast of South America, facing the Pacific Ocean, is straight and steep and has few good openings except the Gulf of Guayaquil in the north and a number of winding fiords in the south.

The Andes, like the Rockies, are fold mountains. They are the longest continuous mountain ranges in the world and extend to a distance of 7200 kms from the Isthmus of Panama to the Strait of Magellan. They contain active and extinct volcanoes.

Bolivia has been noted for its silver mines from very early times. These mines were the chief attraction for the early European settlers in the country. Chemical resources, such as nitrate and guane, are found in the Pacific coastal desert.

South America was inhabited by native people known as native Indians from very early times. When the first settlers came to South America, they found Indian tribes and races scattered far and wide throughout the continent The Inca Indians had developed a remarkable civilization in Peru. The Indian stock is the basic stock of South America

The people of South America are chiefly the Indians and the Negroes. The intermingling of various peoples has been to a great extent and mixed stocks are their main population. Mixed stocks include the Mestizo, who are partly white and partly Indian. The Zambe of mixed Indian and Negro ancestry is another stock. In Bolivia and Ecuador more than half the people are Indians. In Peru, about half the people are whites or Mestizos and the rest are Indians, Negroes and Asiatics.

Spanish is the official language of the Andean Republics and most of the people are Roman Catholics.

2. SPECIFIC OBJECTIVES OF TEACHING

A. Acquisition of Knowledge

The pupil recalls and recognises—

1. the location of the Andean Republics in South America.
2. the mountainous nature of the region.
3. the change in climate and vegetation with attitude in the Andes region.
4 the mineral wealth of the Andes mountains.
5. the narrow coastal plain and variations in its climate with latitude.

B. *Development of Understanding*

The pupil develops understanding of the following major ideas and concepts ·

1. The Andes mountains are fold mountains consisting of a series of mountain ranges with high plateaus or deep valleys in between them.
2. The climate and vegetation of the region with height as well as latitude.
3. The Andean republics are sparsely populated.
4. Though the region is rich in natural resources, lack of transportation facilities hinders development.
5. The economy of the region depends on minerals like nitrate, copper, silver, lead and tin.

C. *Application af Knowledge*

The pupil—

1. realises the effect of attitude on modes of life of the people
2. compares the effect of attitude and latitude on climate and vegetation.
3. compares the Andes mountains with other mountain ranges and finds out similarities and differences.
4. understands the usefulness of Llama as a pack animal on mountain slopes.

D. *Development of Skills*

1. The pupil learns to locate the Andes mountains and the Andean republics on map of S. America.
2. The pupil learns to mark on an outline map, the main mountain ranges, peaks, lakes and rivers and chief towns.
3. The pupil locates places of mining and the chief railway lines in the region.
4. The pupil draws diagrams to represent the production and trade of Andean republics.

E. *Development of Attitudes*

The pupil appreciates—

1. the struggle for life faced by peoples in the mountainous region.
2. the response of man to changes in natural environment with height on a mountain slope.
3. the relationship between natural environment and economic activities, for example northern, middle and southern Chile.
4. the problems faced by countries who depend on a single export product. e.g. Tin-in-Bolivia, copper in Chile, etc.

3. CONTENT

Location

The four Andean Republic Countries extend from 130° North to 51° South Latitude. Except Bolivia, all the other three countries border the western coast of South America, Chile having the longest sea coast.

Ecuador has two neighbours, Columbia to its north and Peru on the south and Peru in turn is bordered by Brazil, Bolivia and Chile in addition to Ecuador and Colombia. Bolivia is landlocked almost in the centre of the continent and its many neighbours are Peru, Brazil, Paraguay, and Argentina.

Physical features

The Andean Republics consist mainly of, a long chain of the Andean mountain ranges, which are the longest continuous mountains of the world. Except in the south, where they form a single chain, the Andes consist of many different chains culminating in mountain knots such as Paste, Lega and Pasce. The western chain is younger than the eastern and has many volcanoes including Catopaxi at an elevation of 6000 metres, the highest volcano in the world. There are high plateaus in Ecuador and Bolivia and their elevation averages 2800 metres in Ecuador and over 3800 metres in Bolivia. In the south a broken chain, the Cordillera de la costa, fringes the coast and runs parallel to the main Andean Range, but south of 49° Latitude it becomes a chain of rocky islands separated by fiords.

Ecuador, as its name suggests, lies astride the equator. It is made up of (1) a coastal plain (2) a plateau between two Andean ridges, on which are situated all the principal towns except Guayaquil-Sieira a part of the Amazon plain-oriente.

Peru lies wholly within the tropics. There are three regions (1) The Pacific coastal plain, with an average width of 48 kilometres and arid desert. (2) A mountain zone consisting of three Andean ridges separated by head streams of the Amazon and converging in the south to the lake Titicaca plateau (3) The eastern slopes of the eastern ridge and Montana, the plains at their base. Peru has about 2040 kilometres of coastline along the Pacific Ocean and this has proved a great advantage especially after the opening of the Panama Canal.

Bolivia consists of (1) a flat-floored plateau known as the Altiplano, 3700 metres above the sea, and lying between two parallel ranges of the Andes and (2) the eastern plains. It is in the Bolivian territory that the Andean, system reaches its maximum width. The western part of the plateau is arid and it is an area of inland drainage draining towards Lake Titicaca, which is itself drained to Lake Poope. Bolivia has no coastline.

Chile occupies a narrow strip on the Pacific sea board some 4480 kilometres long, with its width not more than 320 kilometres. Two parallel ranges of the Andes are separated by a long valley which varies in width from 50 to 70 kilometres but it is broken up by small-cross ridges. In the south it sinks below sea level.

Rivers

The Andes are located on the west of the continents so that main water-shed of South America lies fairly close to the west coast and all the chief rivers of the continent drain their waters into the Atlantic ocean. The Amazon rises in the Andes in Peru and flows into the Atlantic.

The three head streams of the Amazon are Maranon, Huallage and Ucayalis, flow northward as parallel streams in Peru. Lake Titicaca, which is shared by both Peru and Bolivia, and Lake Pooloo are located in an inland drainage basin, which is at an elevation of over 4000 metres.

Climate

The elevation of the Andes mountains, has moderate temperatures even in the equatorial belt. Owing to the narrowing of the continent in the temperate region there is no area sufficiently away from the sea which is subjected to extremes of heat and cold A cool Peruvian current flowing in the west coast affects the climate of Peru and Chile.

Temperature

Ecuador, which lies across the equator, has in some parts of the country all the seasons of a year in a day. The temperature is controlled by the great difference in altitude throughout the country. The lowlands along the coast and east of the Andes have the typical equatorial climate. But Quito, the capital, which lies almost on the equator, has a mild climate because it is more than 1000 metres above sea level. The annual range in temperature is less than 1°F and the day temperature is seldom above 75°F or night temperature below 35°F. Bolivia, being at a distance from the Equator has considerable seasonal changes. At La Paz, (Latitude 16.50 and elevation 3700 metres), the warmest month is November and the coolest, June.

Temperature is remarkably low and uniform on the west coast. At Callao, 12° S. Latitude, the annual mean is 67°F and at Mollendo, 350 miles further south, 65°F. The highest temperature recorded rarely exceeds 80°F.

Winds and Rainfall

The greater part of the continent lies in the region of abundant convectional rains. A considerable area near the equator, gets rain in all the seasons

The cold Peru current runs along the west coast upto the equator. This cold current lessens the temperature of places along the west coast. Iquique on the west coast is no warmer than Bahia Blanca on the east, which is 12,00 miles far from the equator.

In the Northern Chile and along the coastlands of Peru, the winds blow away from or parallel to the coast Therefore they are dry winds. The whole of this part of the west coast (lying on the backward side of the Andes) is an arid desert region The long narrow Atacama Desert crossed by the Tropic of Capricorn is almost rainless. It is one of the driest regions of the world.

Central Chile, lying between the rainy region to the south and the desert region to the north, receives rain in winter from the on-shore westerlies. In summer however it is dry for, at this season, the winds, like those of Northern Chile, blow off-shore.

Southern Chile receives the westerly winds all the year round and has a moist equable climate The fact that Andes lie parallel to the coast cause the heavy rains on the western slopes. The dry region is the plateau of Bolivia which is shut on all sides by mountains.

The excessive rainfall on the western slopes of the southern Andes has enabled the rivers, flowing to the Pacific, to do head-ward erosion in their valleys So there are many places where river-capture has been most important aspect of this region.

Climatic regions of the Western Coast

The Moist Equatorial Belt : This area is similar in climate, vegetation and products to the other equatorial lowlands.

The Arid Belt · This is almost a desert area. Except in Peru, where perennial streams come down from the Andes, but, owing to the drought, great beds of soluable nitrates are present in the southern (Chilean) portion.

The Mediterranean Belt : This is the region of the winter rains and evergreens, a land of grains and fruit. The most fertile part is the valley between the coastal ranges and the Andes proper.

The Temperate Belt · This well-wooded region can be compared to north-western Europe, for the cold Peruvian current keeps the summers very cool, even though the winter cold is not great.

The Great height of the Andes gives rise to successive climatic zones. In the Northern Andes, there is a hot belt up to 1000 metres, a warm temperate belt between 1000 and 2000 metres, and a cool belt between 2000 and 3500 metres. In the Central Andes, however, the hot belt does not reach as high as 1000 metres while in the southern Andes, it is not present at all.

Vegetation

From the Isthmus of Panama to the Gulf of Guayaquil the lower western slopes of the Andes are covered with Tropical Forests. South of the Gulf of Guayaquil the slopes of the Andes become more and more arid until in the Atacama Desert there is little or no vegetation. There are cases along the streams which flow down from the Andes.

The evergreen forests of Andean slopes are known in Peru as montana and in Bolivia as 'yunges'.

Farther south, evergreen trees and shrubs, which are able to stand the dry summers, are found in Central Chile which has the Mediterranean climate. In Southern Chile, forests of coniferous and broad leafed trees cover the lower slopes of the Andes, which receive heavy rains from the onshore westerly winds

The succession of vegetation in the Andes is very well marked. At the base is the equatorial forest with palms and bamboos. This is followed by a sub-tropical forest with ferns, again by temperate forest in which cinchona trees are characteristic. At still higher altitudes, the forest is replaced by shrubs and natural meadows and finally by a bleak and snow-covered desert, bare of vegetation.

Animals

On the high pastures of the Andean plateau live the Llama, Alpaca and Vicuna, whose thick coats yield wool for commerce Chinchilla, a burrowing rodent with a thick valuable fur. is also found. South and Central America have certain kinds of mammals which are not found on the other continents. These include certain toothless animals, such as vampire bats, anteaters and armadillos.

Agriculture

Ecuador : The moist equatorial coastland yields cocoa (chief export) and sugar On the slopes of the mountains coffee and cinchona are obtained. Such products are grown in the higher valleys. Ivory nuts are gathered from the forest trees.

Peru : The coastal plain is crossed by many rivers which provide water for irrigation. The chief crops of the irrigated valley are cotton and sugarcane Most of the land is in large estates on which the Indians and other mixed races work for low wages. Sugarcane is grown in the northern river valleys whereas cotton is grown in the southern valleys. Maize and rice are also grown. Coffee is increasingly grown on the mountain slopes. The forests on the eastern slopes of the mountains furnish cinchona and other products and some rubber is obtained from the equatorial lowlands.

Bolivia · The lowland forests of Bolivia yield some rubber. Agriculture is not significant.

Chile : In the Mediterranean climate region wheat, barley, oats, maize, temperate fruits and tobacco are grown. Wheat occupies about half the total area of ploughed land and considerable quantities of grapes, apples, peaches and other citrus fruits are cultivated. Irrigation is practised in the drier parts.

Mineral Wealth

Ecuador : The coastal region yields petroleum. An increasing amount of petroleum is obtained from the oil-field on the northern side of the Gulf of Guayaquil. From the Petroleum fields, oil is piped to the coast. In the mountains gold and other minerals are mined.

Peru · The coastal region of Peru is noted for petroleum. The oil fields are close to the frontier of Ecuador. The Incas obtained patroleum by digging shallow wells in the oil-bearing sands. Talara is famous for the exports of oil. Guano, which is a valuable fertiliser, is obtained from certain small deserted islands near the coast. The chief copper mines are at Cerro do Pasco

Bolivia . The plateau region has great mineral deposits including tin, silver, lead, copper and gold. The silver mines of Potosi have been famous for centuries. Bolivia supplies about 20% of the worlds's tin. The principal tin-mines lie round Oruro, Potosi and La Paz.

Chile : The Atacama Desert of Northern Chile is the driest region of the world but it is famous for nitrates The nitrate belt extends through the Atacama Desert for 720 kms. It is situated at a distance of from 21 to 144 kms from the coast at elevation varying from 1000 metres to 3000 metres. The nitrates are sent by rail to Iquique, Antofagasta and Caldera. They are shipped to the United States, Europe and Asia for use as fertilisers.

Chile supplies one-fifth of the world's copper. The chief mines are found in the mountains behind Antofagasta and near Capiapo and La Serena. Chuquicamata is a legendary name in copper and it is the world's greatest single copper deposit. However, the deposits are situated in the hospitable climate of the Andes at an elevation of 3000 metres and over. Iodine is a by-product obtained from nitrates. Other minerals, silver and iron are also mined At Coronel some coal is mined.

Transport

The sure-footed Llamas are the chief transport animals in the High Andes. They can carry from 75 to 100 pounds and are able to cover about 19 kilometres a day over difficult mountain slope paths. Four railway lines connect highland Bolivia with the outside world.

Three of these run westward to ports on the Pacific Mollendo in Peru. and Arica and Antofagasta in Chile. The Fourth line runs southward into Argentina and from there to the Atlantic port of Buenos Aires. In Peru, one of the most remarkable railroads in the world connects Callao and Lima with Oroya and Cerro de Pasco. In 96 kms it climbs 500 metres up the Andes and reaches a higher altitude.

Upto the beginning of the 20th century, the only means of communications between the north and south of Chile was by sea. A state-owned railway line has been completed for the whole length of Chile, but much of the communication is by sea, mainly between agricultural and mining belts.

Import and Export

In Ecuador, special type of hats are woven from the fibres of tequilla palm. They are known as Panama hats. These hats are exported from Ecuador. Guayaquil is the chief port which exports cocoa, bananas, coffee and Panama hats.

The chief agricultural exports of Peru are cotton and sugarcane. Peru's principal export is petroleum. The graded wool is dispatched by rail to Mollendo for export.

The chief wealth of Bolivia comes from its tin, silver and copper mines. Bolivia ranks second to Brazil as a rubber-producing country of South America but compared with her minerals, the export of this commodity is negligible. Tin is the chief export. The nitrates and iodine are exported from Iquique in Chile. Valparaiso imports raw sugar and refines it. It also manufactures rolling stock for railways and makes carts and furniture with timber imported from Valdivia.

Concepcion exports rather low grade coal mined in the vicinity and is the chief outlet for the southern part of the vale of Chile. Nitrates are shipped to the United States, Europe and Asia for use as fertilisers.

Important Cities

Chile. Puerto Montt is the centre of a sheep-rearing in Chile Antofagasta is the fourth largest and most modern town in Chile. Cadera is the chief copper exporting centre. The most important towns in North Chile are Iquique and Antofagasta.

Santiago, the capital of Chile is situated in the Central Valley about 160 kilometres from Valpariso, which is the chief port of Chile.

Peru : Lima, the capital is situated at the foot of the coast Pange some eight miles from Callao, which is the chief port of Peru. Cuzco, the ancient Inca capital, is connected by rail to the port of Mollendo. Its port Callao carries on most of the foreign trade of the country. From the ports Callao and Mollendo railways climb the Andes to the Plateau region

Bolivia : Potosi and La Paz are the important mining centres. Sucre is the nominal capital of the country as all government offices, except the supreme court, are located in La Paz. Copper, tin and wolfram are mined round Orupo.

Ecuador · Guayaquil, is the leading port and is connected with the capital Quito. Cuence is the centre for the manufacture of Panama hats.

Population .

Some population figures for the Andean countries are given below (1966 estimate).

	Population	Area in Sq. Miles	Density per Sq. Mile
Bolivia	.. 3,668,000	424000	9
Chile	. 8,515,000	286000	30
Ecuador	.. 4,867,000	176000	98
Peru	... 11,854,000	496000	24

4 TEACHING HINTS

A. The lesson can be introduced by showing films, filmstrip or slides of the Andean Republics, if these can be procured.

B. Make a relief model of the Andean Republic Countries showing—

(1) The Andean mountains

(2) Atacama Desert

(3) Lake Titicaca

(4) The important volcanoes

(5) The important valleys.

C. Collect pictures of the mining camps, Llamas, fruits, etc. Make an album with short write-ups for each picture.

D. Show on an outline map of South America, population distribution by dots. Keep an outlay of the Physical features and note the relationship between population and mountain ranges.

F. Collect the materials such as Panama hat, samples of nitrate, copper and tin, etc.

G. Let the children draw climographs for the following cities with the data given below :

Iquitos, Peru	J	F	M	A	M	J	J	A	S	O	N	D	Year
Temp. in F°	78	78	66	77	76	74	74	76	76	77	78	87	77
Rainfall in inches	10 2	9.8	12.2	6 5	10.0	7.4	6.6	4 6	8,7	7.2	8.4	11.5	103.1
2. Iquique, Chile													
Temp. in F°	71	71	69	65	63	62	60	61	63	64	67	69	66
Rainfall in inches	Practically nil												
3. Valdivia, Chile													
Temp. in F°	60	59	57	54	51	49	46	46	49	51	53	57	53
Rainfall in inches	2.9	3.2	6.4	9.3	15.3	17.5	15.4	13.5	7.3	5.0	4.4	4.8	105.

5. EVALUATION

I. Match the following to make correct pairs.

1. Llama
2. Montana
3. Atacama
4. Cotopoxoi
5. Titicaca
6. Quito

1. Mountain
2. Desert
3. Capital
4. Lake
5. River
6. Animal
7. Peak
8. Plateau
9. Evergreen Forest

II. Complete the following statement by choosing a correct ending. Atacama Desert is the chief source of Chile's wealth because :

1. Wheat is grown enormously in the dry region.
2. It is at foothills of the mineral rich Andes.
3. From it are obtained copper, nitrates and iron ores that made up four-fifths of Chile's export.
4. A large amount of gold is obtained from the desert regions.
5. The desert stands as a barrier for the invading neighbouring countries.

III. Complete the following statements :

1. The natives of the Andean regions are.... ....
2. Panama hats are made from..... ....
3. Copper is mined in the Andes above an elevation of...... . .
4. Example of an inland drainage basin in Bolivia is......... . ...
5. Quito situated on the equator has an average annual temperature of.. . .. .

Acc. No [illegible]
[illegible] 6.3.16

IV. Answer the following in one or two sentences:

1. What are some of the difficulties of mining tin and copper at high altitudes ?
2. Can you explain why nitrates are obtained from the Atacama Desert.
3. Llamas are used as pack-animals in the high Andes. Why ?
4. How is the climate of Central Chile suited for the growth of Citrus fruits.
5. What are the main reasons for the Andean Republics to be thinly populated.
6. What are the difficulties that are to be overcome to improve the industries in the Andean Republic Countries.
7. Describe the location of the following towns and account for their commercial or industrial importance.
    (a) Antofagasta
    (b) La Paz
    (c) Valpariso
    (d) Iquitos
    (e) Chuguicamata
    (f) Quito

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